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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/484,437

01/18/2000

Tongbi Jiang

M4065.0226/P226

9698

24998

7590

07/14/2005

EXAMINER

MITCHELL, JAMES M

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP

2101 L Street, NW

Washington, DC 20037

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/484,437

Applicant(s)

JIANG, TONGBI

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-9,11,12,14,16-20 and 33-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-9,11,12,14,16-20 and 33-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This office action is in response to applicant's request for continued examination filed March 28, 2005.

#### ***Claim Rejections - 35 USC § 112***

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. As claimed, any temperature below 100 degrees will cure the partially cured adhesive, therefore when an encapsulant is molded onto the device there no longer is a partially cured adhesive. As claimed, a partially cured adhesive curing below 100 degrees Celsius and molded encapsulant are mutually exclusive.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 38 recites the limitation "the conductive path" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9, 11, 12, 14, 19, 20, 33, 35 and 37-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Amagai et al. (U.S. 6,232,661).

Amagai (Fig.1, 3) discloses:

(cl. 1, 2, 12, 14, 20) a semiconductor device assembly comprising: a solder mask (6) over a substrate (3); a die (2); conductive paths/ electrical contacts (4a,b) on said substrate connecting (by item 5) contacts (2a) on said die with contacts in said substrate that are devoid/remain relatively free of contaminants (i.e. no contaminants disclosed & it affects operability<sup>1</sup>); an adhesive layer (8) adhering said die to said solder mask;

(cl. 3) with an encapsulant (9) molded over the assembly;

(cl. 37, 38) where conductive paths (understood to be connecting means) are wire bonds (5);

(cl. 39, 40) with adhesive sufficient to hold die to solder mask during package (i.e. die attached to mask; Fig. 3);

With respect to the process limitations claims such as partially cured adhesive<sup>2</sup> or that it's at least fifty percent or including "initiators in the partially cured adhesive which react<sup>3</sup> at a temperature..." or "contaminants released by outgassing from... cure process," or "subsequent packaging assembly..." the prior art structure is the same as the claimed invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8, 16-18, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amagai (U.S. 6,232,661) as applied to claims 1 and 12, and further in combination with Umehara et al. (U.S. 6,007,920).

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<sup>1</sup> Since every patent is presumed valid (35 U.S.C. 282) that presumption includes the presumption of operability (Metropolitan Eng. Co. v. Coe, 78 F.2d 199, 25 USPQ 216 (D.C.Cir. 1935). See M.P.E.P 716.07

<sup>2</sup> The adhesive is completely solid, since the material is in a cured at any temperature, including temperatures above and below 100 (i.e. 1 degree, room temperature, 300 degrees etc.).

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Amagai does not appear to explicitly show that its adhesive was bismaleimide, which has a glassy temperature between 5 to 20 degrees Celsius.

Umehara teaches bismaleimide as a type of polyimide adhesive.

It would have been obvious to one of ordinary skill in the art to form the adhesive of Amagai with a bismaleimide, such that it has a glassy temperature between 5 to 20 degrees Celsius<sup>4</sup> in order to provide a polyimide resin as disclosed by Amagai (Col.5, Line 56-58).

### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art in: Juso (U.S 6,265,783) and Anki (U.S. 5,874,784) the use of an adhesive to attach a die to a soldermask formed on a substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone

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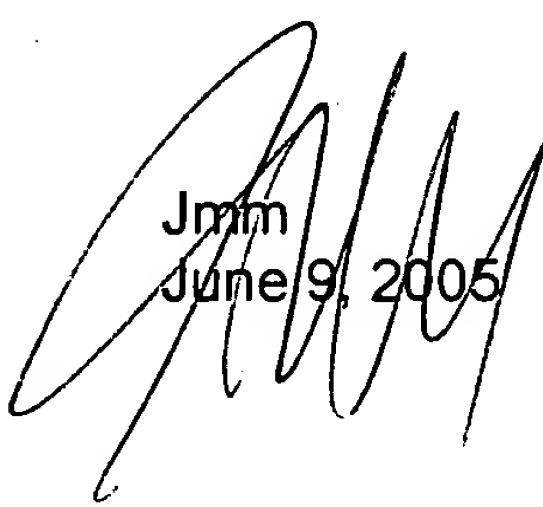
<sup>3</sup> No longer in final product

<sup>4</sup> Admitted by applicant, Page 6, bismaleimide Tg is 5-10 degree Celsius


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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jmm  
June 9, 2005



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